DOCUMENT RESUME

ED 310 729 IR 013 831

AUTHOR Beasley, Augie E.; Palmer, Carolyn G.
TITLE When All Else Fails--KICK! Trouble Shooting, Preventive Maintenance, and Auxiliary Equipment.
INSTITUTION Charlotte-Mecklenburg Public Schools, Charlotte, N.C.
PUB DATE 80
NOTE 11p.
PUB TYPE Guides - Non-Classroom Use (055) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Audiovisual Aids; *Cleaning; Elementary Secondary Education; *Equipment Maintenance; Films; *Preservation; *Repair; Videotape Cassettes

ABSTRACT

The guidelines presented in this manual for the maintenance and repair of media equipment and materials provide information on optical systems, slide projectors, film projectors, overhead projectors, record players, cassette recorders, public address systems, opaque projectors, laminators, motion picture films, and cassette tapes. A list of sources of equipment and supplies (including some addresses and phone numbers) and a seven-item annotated bibliography are included. (EW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED310729

WHEN ALL ELSE FAILS— KICK!

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

TROUBLE SHOOTING, PREVENTIVE MAINTENANCE, and AUXILIARY EQUIPMENT

Presented by

AUGIE E. BEASLEY

and

CAROLYN G. PALMER

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Augie E. Beasley
Carolyn G. Palmer
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

IR013831

PREVENTIVE MAINTENANCE

MAINTENANCE FOR OPTICAL SYSTEMS

1. Glass condenser lenses may be cleaned with dry or damp cloth or with soap and water.
2. Oil may be removed with lighter fluid or dry cleaners.
3. Be very careful not to scratch fresnel lenses. Use only water or a liquid cleaner made for plastics and a soft cloth.
4. Make sure condenser lenses with unequally curved surfaces are placed back in the projector in the correct order. If not, the lens holder may not fit properly, or an uneven illuminated image will result.
5. Lamps except the tungsten-halogen may be cleaned like glass condenser lenses.
6. Wipe the mirror behind lamp with a dry or damp cloth.
7. Lens tissue should be used to clean projection lenses which are coated to reduce reflections. The lens surface may be fogged with breath and then cleaned.

MAINTENANCE FOR SLIDE PROJECTORS

1. To clean the projection lens, remove the lens and blow off any loose grit.
2. Use lens tissue or a clean cloth moistened with a drop of lens cleaner to wipe the surfaces of the projection lens.
3. Fingerprints will reduce the brightness and clarity of the images, but dust will not.
4. Condenser lenses (and heat-absorbing glass) may be cleaned by wiping with lens cleaning tissue or a clean cloth. Remove fingerprints on the surfaces. The mirror surface may be cleaned in the same manner.
5. The track for the tray may be cleaned with WD-40.
6. Projectors which are used constantly may need to be cleaned weekly.
7. Always allow projector to cool before replacing a lamp or cleaning lenses. The heat-absorbing glass could shatter. Always handle it with care and allow it to cool. Anytime the glass is exposed, cover it with a cloth.
8. Check cords regularly for damage. Do not operate with a damaged cord.
9. Check trays before use to see that the metal slide retainer is locked in the correct position.
10. If unsure about removing lenses, etc. check instructions in the manual.

MAINTENANCE FOR FILM PROJECTORS

1. It will help to keep a service log on film projectors.
2. Keep all gates and sprockets clean. A brush can be used to remove loose dirt from film gates. If a special aperture brush is not available, a toothpick will work fine.
3. Adhesive from mending tape, film cement or soft new film can accumulate on the pressure plates. It can be removed by scraping with a wooden or plastic scraper. No metal should touch these areas. If a scratch occurs, damage will occur to the films projected.
4. Optical parts are cleaned in basically the same manner as for other optical systems. Use lens tissue on the projection lenses. First fog surface with your breath.
5. Check the entire film path regularly to make sure it is clean and free for the film's passage.
6. Rollers may need a small amount of lubrication. Be careful not to leave oil anywhere that it could get on the film.
7. Older machines may need oiling regularly. The motor and mechanical systems should be oiled following instructions in manual carefully. Damage results from too little or too much oil to these parts. Newer machines should be lubricated about once a year by a qualified technician.
8. Check take-up reels regularly to be sure that they are not bent and pinchi the film. Winding a dirty power cord on the take-up reel is not a good practice.
9. Check cords (power and speaker) and repair as needed.

MAINTENANCE FOR OVERHEAD PROJECTORS

1. DO NOT run when fan is not running. This will cause the machine to overheat and damage the fresnel lens.
2. Various lenses and optical parts should be cleaned following the instructic under maintenance for optical systems.
3. The projection head assembly (if not sealed) can be opened with simple tools and cleaned. The first surface mirror must be cleaned with extreme care and would be better left dirty than risk damaging it. Sealed units should be cleaned only by a specialist.
4. The stage and fresnel lens need to be cleaned often. Dirt on these areas appear enlarged on the screen. A damp cloth works fine. Glass window cleaner should not be used unless made for use with plastics. Surface may be cleaned with lighter fluid but only after machine has cooled.
5. Optical systems may get out of alignment. The reflector and lamp can be adjusted with simple tools. The projection head may need slight repositioning.
6. A lubricant may be needed on the focusing and elevating devices. Fans get noisy and a drop of oil on the fan motor shaft may help. Be careful to keep oil off of the optical surfaces.
7. Check cords for wear and to see if they get hot during use. If the cord does get hot during use, it needs a new end or replacement.

8. NEVER leave an overhead projector in cars or places where the sun can use the lens as a burning glass.

9. When not projecting an image, turn off the projector lamp but leave the fan running to cool the machine.

MAINTENANCE FOR RECORD PLAYERS

1. Record-transcription players require more maintenance than any other machine.
2. Inspect needles regularly. Check for dirt and lint which will interfere with operation. A soft brush may be used to remove it. Blowing will often work. Avoid running the finger or thumb over the needle since the needle can easily be bent.
3. Inspect the tip of the needle with a good magnifier (special ones are available). Check to see that it has not been broken, chipped or worn flat.
4. If a good needle skips or repeats grooves when playing on a level surface, slightly more weight is needed. Check instructions for specified amount. The adjustment may be on the top of the arm, or a screw and spring under i The commonly taped penny indicates that the weight has not been adjusted.
5. Arm movement should be free and easy. Occasionally, lead wires that go through the tone arm need rearrangement to allow the tone arm to operate without interference.
6. Alway anchor the tone arm before moving the record player.
7. Check turntable following instructions in manual. The bearing or motor may need a small amount of oil. Oil must not get on the friction drive spindle or rubber tire. If the rubber tire has become glazed, it can be roughened with fine sandpaper.
8. Solvents are available for cleaning all friction surfaces and the inside rim of the turntable.
9. Hum and shock problems with inexpensive players may be improved by removin the power cord plug and rotating 180 degrees and reinserting it.

MAINTENANCE FOR CASSETTE RECORDERS

1. Clean the heads periodically with a cotton swab and any commercial head cleaning agent.
2. Check the heads between cleanings for accumulations of dirt and tape coating and clean if necessary.
3. Clean the tape drive roller, capstan, and tape guides when cleaning the heads. Rub lightly with denatured alcohol and a cotton swab. Never use metal or any hard material (such as fingernails).
4. Demagnetize the heads periodically with a commercially available head demagnetizing unit. Instructions are given with these units. This helps maintain noise-free recordings.

MAINTENANCE FOR FILMSTRIP PROJECTORS

1. To clean the projection lens--remove from housing and wipe exposed surfaces with a clean soft cloth. If lens cleaner is necessary, apply cleaner to cloth not directly on the lens surface.
2. Remove condenser unit and clean lens surfaces. The heat filter and condenser are usually removed from the unit by removing screws.
3. The biconvex condenser (refer to diagram in manual) can usually be cleaned without unmounting after the other lenses have been removed.
4. Make sure when returning the lenses to their position that they go back in the correct order. A clearance of 1/16" should be maintained between all glass surfaces.

SOUND FILMSTRIP PROJECTORS

5. Wipe the film with dry, lint-free cloth to remove dust particles.
6. Glass components may shatter. Cover with cloth and handle carefully.
7. Clean the tapehead and capstan with head cleaning cassette.
8. Clean the pressure roller with alcohol on a soft cloth or Q-Tip and wipe clean.
9. Always let lamp cool before replacing it. Disconnect power cord.

SOUND FILMSTRIP VIEWERS

10. Wet a cotton swab with Freon T-F or ordinary household alcohol and lightly wipe the tape contact surface of the tape head.
11. Avoid excessive force which may misalign head.
12. Do not use commercially available head cleaning preparations. The solvents in these may have an adverse effect on the compounds used in the head.
13. The capstan shaft and rubber pressure rollers may be cleaned in the same manner.
14. Check manuals for maintenance advice for different type projectors before cleaning.

MAINTENANCE FOR PUBLIC ADDRESS SYSTEMS

1. Most problems involve wires, connectors, and microphones and loudspeakers. Check these on a regular basis.
2. Connectors can usually be opened with a small screwdriver, but some require a small hex wrench or special tool.
3. Sometimes wires can be tightened with a screwdriver. Often they need to be resoldered with a small soldering iron and rosin core solder.
4. If wires are broken inside or at the entrance of the connector, the whole cord must be cut off.
5. All unused channels should have volume controls set to minimum.
6. Tone controls should be adjusted to give acceptable sound quality.
7. Make sure nuts and bolts around speakers are tight.

MAINTENANCE FOR THE OPAQUE PROJECTOR

1. Check all screws and tighten as needed. Tighten stage system and focus knob.
2. Check belt in stage system to make sure it is in good condition. It can be replaced with little difficulty.
3. The lamp and mirrors can be cleaned with a cloth.
4. The large front or first surface mirror needs special care. Brush dust off with a soft brush or blow it off. If finger prints are present, lens tissue and a little moisture may help.
5. Clean projection lens as listed under optical systems.
6. Check fans for pieces of paper which occasionally get sucked up into the machine.

MAINTENANCE FOR LAMINATORS

1. Check film tension. Too much on both rolls causes a squeal. Too little causes wrinkles or air pockets. Uneven tension causes curling of materials.
2. To increase tension, turn adjustment knobs clockwise. To decrease turn adjustment knobs counterclockwise.
3. Make sure both heat shoes indicate the same temperature.
4. If roller pressure does not seem appropriate, adjust as described for thick materials--insert larger allen wrench into the holes at top left and top right of housings. Turn the wrench two turns counterclockwise.
5. Keep covered when not in use.
6. If rollers become dirty with residue, remove film and run a piece of cardboard or manila folder through several times, which hot. If this does not work, any rubber roller cleaner or good liquid household cleaner or mild solvent will help. Never use an abrasive on the rollers or heat shoes.

FILM DAMAGES AND THEIR CAUSES

Below are some damages to motion picture films and their causes:

BREAKS

1. Allowing kinks to form in the film during threading or rewinding
2. A sharp bend in an old or very dry film
3. Bent reels (film catches on the side and causes a tear)
4. Bad splice which may hang in the gate or come apart while going through the projector

SCRATCHES

1. Hardened emulsion on film channel plate or pressure plate
2. Cinching film (pulling the film to tighten on reel)
3. Film rubbing on stationary part of the projector during the projection or during rewinding
4. Holding fingers on film during rewinding

DRYNESS

1. Leaving film cans open for long periods of time
2. Leaving a film out of the can when not in use

TORN SPROCKET HOLES

1. Dirty film gate
2. On Bell & Howell projector, film too tight on sound drum
3. Bent sprocket teeth
4. Loss of film loop
5. Too much tension in film gate

SPROCKET MARKS ON FILM

1. Film incorrectly placed on sprockets
2. Improperly spliced film which does not match sprocket teeth

PROTECTING YOUR RECORDINGS

PREVENT ACCIDENTAL ERASURE BY:

Using a small screwdriver to break the tabs from the cassette. (These two small tabs are located on the back of each cassette.)

Removing the tab on the left of the cassette protects side 2, while the tab on the right may be removed to protect side 1.

Removal of these tabs does not protect the cassette from a bulk erasing machine.

If later you decide to re-record on the cassette, you can cover the openings with a small piece of cellophane tape.

TAKING CARE OF YOU CASSETTES

Always be sure the tape is tight before it is placed into the machine. Wind by hand until the tape is not slack inside the cassette.

On a new cassette or one that hasn't played recently, fast forward and then rewind. This keeps the layers of the tape from sticking.

If a cassette is split, it can still be spliced if the loose ends can be brought together. Some cassette cases can be opened to find the end.

If the hubs will not turn, the tape is probably bunching up. Sometimes this can be solved by tapping the cassette flat against a hard durface.

Whenever a tape fails to move or does not sound right, turn the machine off. Remove the cassette and check for jamming. Never put the machine into "fast forward" or "rewind" to attempt to force the tape to move.

REPAIRING CASSETTE TAPES

It is best to use a splicing block for repairing tapes.

To use a splicing machine, raise the cutting arm and adjust the angle of the blade to about 45" angle.

Raise hold-down arms and insert tape.

Cut tape to edit or repair.

Apply tape splice and remove protective paper backing.

Do not put the splice on the coated side of the tape.

Make sure the splice is cut and trimmed even with the edge of the cassette tape. Ends should be matched and covered with the tape. Press hard until the tape holds.

SOURCES OF EQUIPMENT AND SUPPLIES

ADAPTERS AND PLUGS	Any Radio Shack
SOLVENTS (lens cleaners)	Camera Shops
SOLDERING IRON	Radio Shack
SOUND MIXERS	Valiant (195 Bonhomme St., P.O. Box 488 Hackensack, N.J. 07602 1-800-631-0867) Audio-Visual Equipment, Supplies and Instructional Materials
EQUIPMENT	Modern Sound Pictures, Inc. (1402 Howard Street, Omaha, Nebraska 68102)
VIDEO/AV EQUIPMENT	Standard Theatre Supply Col (125 Higgins Street P.O. Box 20660, Greensboro, N.C. 27420 1-800-334-0201)
SANSUI EDITING MACHINE	L.& J. Electronics (206 Signal Hill Drive, Statesville, N.C. 28677) Larry Leatherwood 704-83-3227
ULTRA SONIC PEN CLEANER	

BIBLIOGRAPHY

Armstrong, Robert E. CLOSED-CIRCUIT TV INSTALLATION, MAINTENANCE & REPAIR. Blue Ridge Summit, PA:TAB Books, Inc., 1978.

Goudket, Michael. AN AUDIOVISUAL PRIMER. Columbia University,New York: Teachers College Press, 1974.

Laird, Dugan. A USER'S LOOK AT THE AUDIO-VISUAL WORLD--A-V BUYER'S GUIDE. Fairfax, VA: National Audio-Visual Association, 1980.

Lewell, John. MULTIVISION. Woburn, MA: Focal Press, 1980.

Looks at the various aspects of multi-image production and presentation, with emphasis on the mechanics of the equipment.

Samuelson, David W. MOTION PICTURE CAMERA & LIGHTING EQUIPMENT. Woburn, MA: Focal Press, 1977.

Provides information on equipment, how to handle it, maintain it, and use it effectively and efficiently.

Wyman, Raymond. MEDIAWARE: SELECTION, OPERATION & MAINTENANCE. Dubuque, IA: William C. Brown Co., 1975.

Villastrigo, Robert. HOW TO REPAIR MOVIE AND SLIDE PROJECTORS. Blue Ridge Summit, PA: TAB Books, Inc., 1978.

Intended for individuals with some mechanical/electrical ability who occasionally want to make minor adjustments or repair. Includes diagrams and instructions for specific models.